

# SEQUENCE LISTING

INFORMATION FOR SEQ ID NO:1:

## SEQUENCE CHARACTERISTICS:

LENGTH:331

TYPE:amino acid

TOPOLOGY:linear

MOLECULE TYPE:peptide

SEQUENCE DESCRIPTION: SEQ ID NO:1

Asp Ser Asp Asp Arg Val Thr Pro Pro Ala Glu Pro Leu Asp Arg Met

1 5 10 15

Pro Asp Pro Tyr Arg Pro Ser Tyr Gly Arg Ala Glu Thr Val Val Asn

20 25 30

Asn Tyr Ile Arg Lys Trp Gln Gln Val Tyr Ser His Arg Asp Gly Arg

35 40 45

Lys Gln Gln Met Thr Glu Glu Gln Arg Glu Trp Leu Ser Tyr Gly Cys

50 55 60

Val Gly Val Thr Trp Val Asn Ser Gly Gln Tyr Pro Thr Asn Arg Leu

65 70 75 80

Ala Phe Ala Ser Phe Asp Glu Asp Arg Phe Lys Asn Glu Leu Lys Asn

85 90 95

Gly Arg Pro Arg Ser Gly Glu Thr Arg Ala Glu Phe Glu Gly Arg Val

Ala Lys Glu Ser Phe Asp Glu Glu Lys Gly Phe Gln Arg Ala Arg Glu

115 120 125

Val Ala Ser Val Met Asn Arg Ala Leu Glu Asn Ala His Asp Glu Ser

130 135 140

Ala Tyr Leu Asp Asn Leu Lys Lys Glu Leu Ala Asn Gly Asn Asp Ala

145 150 155 160

Leu Arg Asn Glu Asp Ala Arg Ser Pro Phe Tyr Ser Ala Leu Arg Asn

165 170 175

Thr Pro Ser Phe Lys Glu Arg Asn Gly Gly Asn His Asp Pro Ser Arg

180 185 190

Met Lys Ala Val Ile Tyr Ser Lys His Phe Trp Ser Gly Gln Asp Arg

195 200 205

Ser Ser Ser Ala Asp Lys Arg Lys Tyr Gly Asp Pro Asp Ala Phe Arg

210 215 220

Pro Ala Pro Gly Thr Gly Leu Val Asp Met Ser Arg Asp Arg Asn Ile

225 230 235 240

Pro Arg Ser Pro Thr Ser Pro Gly Glu Gly Phe Val Asn Phe Asp Tyr

245 250 255

Gly Trp Phe Gly Ala Gln Thr Glu Ala Asp Ala Asp Lys Thr Val Trp  
 260 265 270

Thr His Gly Asn His Tyr His Ala Pro Asn Gly Ser Leu Gly Ala Met  
 275 280 285

His Val Tyr Glu Ser Lys Phe Arg Asn Trp Ser Glu Gly Tyr Ser Asp  
 290 295 300

Phe Asp Arg Gly Ala Tyr Val Ile Thr Phe Ile Pro Lys Ser Trp Asn  
 305 310 315 320

Thr Ala Pro Asp Lys Val Lys Gln Gly Trp Pro  
 325 330

INFORMATION FOR SEQ ID NO:2:

SEQUENCE CHARACTERISTICS:

LENGTH: 993

TYPE: nucleic acid

STRANDEDNESS: double

TOPOLOGY: linear

MOLECULE TYPE: other nucleic acid      synthetic DNA

FEATURE

FEATURE KEY: CDS

LOCATION: 1..993

IDENTIFICATION METHOD: S

SEQUENCE DESCRIPTION: SEQ ID NO:2



GGT CGT CCG CGT TCT GGT GAA ACT CGT GCT GAA TTC GAA GGT CGT GTT

336

Gly Arg Pro Arg Ser Gly Glu Thr Arg Ala Glu Phe Glu Gly Arg Val

100

105

110

GCT AAG GAA TCC TTC GAT GAA GAG AAA GGC TTC CAG CGT GCT CGT GAA

384

Ala Lys Glu Ser Phe Asp Glu Glu Lys Gly Phe Gln Arg Ala Arg Glu

115

120

125

GTT GCT TCT GTT ATG AAC CGT GCT CTA GAG AAC GCT CAT GAT GAA TCT

432

Val Ala Ser Val Met Asn Arg Ala Leu Glu Asn Ala His Asp Glu Ser

130

135

140

GCT TAC CTG GAT AAC CTG AAG AAG GAA CTG GCT AAC GGT AAC GAT GCT

480

Ala Tyr Leu Asp Asn Leu Lys Lys Glu Leu Ala Asn Gly Asn Asp Ala

145

150

155

160

CTG CGT AAC GAA GAT GCT CGT TCT CCG TTC TAC TCT GCT CTG CGT AAC

528

Leu Arg Asn Glu Asp Ala Arg Ser Pro Phe Tyr Ser Ala Leu Arg Asn

165

170

175

ACT CCG TCC TTC AAA GAA CGT AAC GGT GGT AAC CAT GAT CCG TCT CGT

576

Thr Pro Ser Phe Lys Glu Arg Asn Gly Gly Asn His Asp Pro Ser Arg

180

185

190

ATG AAA GCT GTT ATC TAC TCT AAA CAT TTC TGG TCT GGT CAG GAT AGA

624

Met Lys Ala Val Ile Tyr Ser Lys His Phe Trp Ser Gly Gln Asp Arg

195

200

205

TCT TCT TCT GCT GAT AAA CGT AAA TAC GGT GAT CCG GAT GCA TTC CGT

672

Ser Ser Ser Ala Asp Lys Arg Lys Tyr Gly Asp Pro Asp Ala Phe Arg

210

215

220

CCG GCT CCG GGT ACT GGT CTG GTA GAC ATG TCT CGT GAT CGT AAC ATC

720

Pro Ala Pro Gly Thr Gly Leu Val Asp Met Ser Arg Asp Arg Asn Ile

225

230

235

240

CCG CGT TCT CCG ACT TCT CCG GGT GAA GGC TTC GTT AAC TTC GAT TAC

768

Pro Arg Ser Pro Thr Ser Pro Gly Glu Gly Phe Val Asn Phe Asp Tyr

245

250

255

GGT TGG TTC GGT GCT CAG ACT GAA GCT GAT GCT GAT AAG ACT GTA TGG

816

Gly Trp Phe Gly Ala Gln Thr Glu Ala Asp Ala Asp Lys Thr Val Trp

260

265

270

ACC CAT GGT AAC CAT TAC CAT GCT CCG AAC GGT TCT CTG GGT GCT ATG

864

Thr His Gly Asn His Tyr His Ala Pro Asn Gly Ser Leu Gly Ala Met  
 275 280 285

CAT GTA TAC GAA TCT AAA TTC CGT AAC TGG TCT GAA GGT TAC TCT GAC  
 912

His Val Tyr Glu Ser Lys Phe Arg Asn Trp Ser Glu Gly Tyr Ser Asp  
 290 295 300

TTC GAT CGT GGT GCT TAC GTT ATC ACC TTC ATT CCG AAA TCT TGG AAC  
 960

Phe Asp Arg Gly Ala Tyr Val Ile Thr Phe Ile Pro Lys Ser Trp Asn  
 305 310 315 320

ACT GCT CCG GAC AAA GTT AAA CAG GGT TGG CCG  
 993

Thr Ala Pro Asp Lys Val Lys Gln Gly Trp Pro  
 325 330

# INFORMATION FOR SEQ ID NO:3:

## SEQUENCE CHARACTERISTICS:

LENGTH: 1518

TYPE: nucleic acid

STRANDEDNESS: double

TOPOLOGY: linear

MOLECULE TYPE: other nucleic acid synthetic DNA

## FEATURE

FEATURE KEY: CDS

LOCATION: 87..1082

IDENTIFICATION METHOD:S

SEQUENCE DESCRIPTION: SEQ ID NO:3

TTCCCCTGTT GACAATTAAT CATCGAACTA GTTAACTAGT ACGCAAGTTC ACGTAAAAAG

60

GGTATCGATT AGTAAGGAGG TTTAAA ATG GAT TCT GAC GAT CGT GTT ACT CCA

113

Met Asp Ser Asp Asp Arg Val Thr Pro

1

5

CCA GCT GAA CCA CTG GAT CGT ATG CCA GAT CCA TAT CGT CCA TCT TAT

161

Pro Ala Glu Pro Leu Asp Arg Met Pro Asp Pro Tyr Arg Pro Ser Tyr

10

15

20

25

GGT CGT GCT GAA ACT GTT GTT AAT AAT TAT ATT CGT AAA TGG CAA CAA

209

Gly Arg Ala Glu Thr Val Val Asn Asn Tyr Ile Arg Lys Trp Gln Gln

30

35

40

GTT TAT TCT CAT CGT GAT GGT CGT AAA CAA CAA ATG ACT GAA GAA CAA

257

Val Tyr Ser His Arg Asp Gly Arg Lys Gln Gln Met Thr Glu Glu Gln

45

50

55

CGT GAA TGG CTG TCT TAT GGT TGC GTT GGT GTT ACT TGG GTT AAC TCT

305

Arg Glu Trp Leu Ser Tyr Gly Cys Val Gly Val Thr Trp Val Asn Ser

60

65

70



GGT CAG TAT CCG ACT AAC CGT CTG GCA TTC GCT TCC TTC GAT GAA GAT

353

Gly Gln Tyr Pro Thr Asn Arg Leu Ala Phe Ala Ser Phe Asp Glu Asp

75

80

85

CGT TTC AAG AAC GAA CTG AAG AAC GGT CGT CCG CGT TCT GGT GAA ACT

401

Arg Phe Lys Asn Glu Leu Lys Asn Gly Arg Pro Arg Ser Gly Glu Thr

90

95

100

105

CGT GCT GAA TTC GAA GGT CGT GTT GCT AAG GAA TCC TTC GAT GAA GAG

449

Arg Ala Glu Phe Glu Gly Arg Val Ala Lys Glu Ser Phe Asp Glu Glu

110

115

120

AAA GGC TTC CAG CGT GCT CGT GAA GTT GCT TCT GTT ATG AAC CGT GCT

497

Lys Gly Phe Gln Arg Ala Arg Glu Val Ala Ser Val Met Asn Arg Ala

125

130

135

CTA GAG AAC GCT CAT GAT GAA TCT GCT TAC CTG GAT AAC CTG AAG AAG

545

Leu Glu Asn Ala His Asp Glu Ser Ala Tyr Leu Asp Asn Leu Lys Lys

140

145

150

GAA CTG GCT AAC GGT AAC GAT GCT CTG CGT AAC GAA GAT GCT CGT TCT

593

Glu Leu Ala Asn Gly Asn Asp Ala Leu Arg Asn Glu Asp Ala Arg Ser

155

160

165

CCG TTC TAC TCT GCT CTG CGT AAC ACT CCG TCC TTC AAA GAA CGT AAC

641

Pro Phe Tyr Ser Ala Leu Arg Asn Thr Pro Ser Phe Lys Glu Arg Asn

170

175

180

185

GGT GGT AAC CAT GAT CCG TCT CGT ATG AAA GCT GTT ATC TAC TCT AAA

689

Gly Gly Asn His Asp Pro Ser Arg Met Lys Ala Val Ile Tyr Ser Lys

190

195

200

CAT TTC TGG TCT GGT CAG GAT AGA TCT TCT TCT GCT GAT AAA CGT AAA

737

His Phe Trp Ser Gly Gln Asp Arg Ser Ser Ser Ala Asp Lys Arg Lys

205

210

215

TAC GGT GAT CCG GAT GCA TTC CGT CCG GCT CCG GGT ACT GGT CTG GTA

785

Tyr Gly Asp Pro Asp Ala Phe Arg Pro Ala Pro Gly Thr Gly Leu Val

220

225

230

GAC ATG TCT CGT GAT CGT AAC ATC CCG CGT TCT CCG ACT TCT CCG GGT

833

Asp Met Ser Arg Asp Arg Asn Ile Pro Arg Ser Pro Thr Ser Pro Gly

235

240

245

GAA GGC TTC GTT AAC TTC GAT TAC GGT TGG TTC GGT GCT CAG ACT GAA

881

TCT 220 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000

Glu Gly Phe Val Asn Phe Asp Tyr Gly Trp Phe Gly Ala Gln Thr Glu  
250 255 260 265

GCT GAT GCT GAT AAG ACT GTA TGG ACC CAT GGT AAC CAT TAC CAT GCT  
929

Ala Asp Ala Asp Lys Thr Val Trp Thr His Gly Asn His Tyr His Ala  
270 275 280

CCG AAC GGT TCT CTG GGT GCT ATG CAT GTA TAC GAA TCT AAA TTC CGT  
977

Pro Asn Gly Ser Leu Gly Ala Met His Val Tyr Glu Ser Lys Phe Arg  
285 290 295

AAC TGG TCT GAA GGT TAC TCT GAC TTC GAT CGT GGT GCT TAC GTT ATC  
1025

Asn Trp Ser Glu Gly Tyr Ser Asp Phe Asp Arg Gly Ala Tyr Val Ile  
300 305 310

ACC TTC ATT CCG AAA TCT TGG AAC ACT GCT CCG GAC AAA GTT AAA CAG  
1073

Thr Phe Ile Pro Lys Ser Trp Asn Thr Ala Pro Asp Lys Val Lys Gln  
315 320 325

GGT TGG CCG TAATGAAAGC TTGGATCTCT AATTACTGGA CTTACACACAG ACTAAAATAG  
1131

Gly Trp Pro  
330

ACATATCTTA TATTATGTGA TTTTGTGACA TTTCCTAGAT GTGAGGTGGA GGTGATGTAT

1191  
AAGGTAGATG ATGATCCTCT ACGCCGGACG CATCGTGGCC GGCATCACCG GCGCCACAGG  
1251  
TGCGGTTGCT GGCGCCTATA TCGCCGACAT CACCGATGGG GAAGATCGGG CTCGCCACTT  
1311  
CGGGCTCATG AGCGCTTGTT TCGGCGTGGG TATGGTGGCA GGCCCCGTGG CCGGGGGACT  
1371  
GTTGGGCGCC ATCTCCTTGC ATGCACCATT CCTTGCGGCG GCGGTGCTCA ACGGCCTCAA  
1431  
CCTACTACTG GGCTGCTTCC TAATGCAGGA GTCGCATAAG GGAGAGCGTC GAGAGCCCCG  
1491  
CTAATGAGCG GGCTTTTTTT TCAGCTG  
1518

INFORMATION FOR SEQ ID NO:4:

SEQUENCE CHARACTERISTICS:

LENGTH:39

TYPE:nucleic acid

STRANDEDNESS:single

TOPOLOGY: linear

MOLECULE TYPE:other nucleic acid      synthetic DNA

SEQUENCE DESCRIPTION: SEQ ID NO:4

AATTCATCGA TTAGTAAGGA GGTTTAAAT GGATTCTGA

39

INFORMATION FOR SEQ ID NO:5:

SEQUENCE CHARACTERISTICS:

LENGTH:41

TYPE: nucleic acid

STRANDEDNESS:single

TOPOLOGY: linear

MOLECULE TYPE:other nucleic acid      synthetic DNA

SEQUENCE DESCRIPTION: SEQ ID NO:5

CGATCGTCAG AATCCATTTT AAACCTCCTT ACTAATCGAT G

41

INFORMATION FOR SEQ ID NO:6:

SEQUENCE CHARACTERISTICS:

LENGTH:41

TYPE: nucleic acid

STRANDEDNESS:single

TOPOLOGY: linear

MOLECULE TYPE:other nucleic acid      synthetic DNA

SEQUENCE DESCRIPTION: SEQ ID NO:6

CGATCGTGTT ACTCCACCAG CTGAACCACT GGATCGTATG C

41

INFORMATION FOR SEQ ID NO:7:

SEQUENCE CHARACTERISTICS:

LENGTH:41

TYPE: nucleic acid

STRANDEDNESS:single

TOPOLOGY: linear

MOLECULE TYPE:other nucleic acid      synthetic DNA

SEQUENCE DESCRIPTION: SEQ ID NO:7

GATCTGGCAT ACGATCCAGT GGTTCAGCTG GTGGAGTAAC A

41

INFORMATION FOR SEQ ID NO:8:

SEQUENCE CHARACTERISTICS:

LENGTH:41

TYPE: nucleic acid

STRANDEDNESS:single

TOPOLOGY: linear

MOLECULE TYPE:other nucleic acid      synthetic DNA

SEQUENCE DESCRIPTION: SEQ ID NO:8

CAGATCCATA TCGTCCATCT TATGGTCGTG CTGAAACTGT T

41

INFORMATION FOR SEQ ID NO:9:

SEQUENCE CHARACTERISTICS:

LENGTH:41

TYPE: nucleic acid

STRANDEDNESS:single

TOPOLOGY: linear

MOLECULE TYPE:other nucleic acid      synthetic DNA

SEQUENCE DESCRIPTION: SEQ ID NO:9

ATTAACAACA GTTTCAGCAC GACCATAAGA TGGACGATAT G

41

INFORMATION FOR SEQ ID NO:10:

SEQUENCE CHARACTERISTICS:

LENGTH:41

TYPE: nucleic acid

STRANDEDNESS:single

TOPOLOGY: linear

MOLECULE TYPE:other nucleic acid      synthetic DNA

SEQUENCE DESCRIPTION: SEQ ID NO:10

GTTAATAATT ATATTCGTAA ATGGCAACAA GTTTATTCTC A

41

INFORMATION FOR SEQ ID NO:11:

SEQUENCE CHARACTERISTICS:

LENGTH:41

TYPE: nucleic acid

STRANDEDNESS:single

TOPOLOGY: linear

MOLECULE TYPE:other nucleic acid      synthetic DNA

SEQUENCE DESCRIPTION: SEQ ID NO:11

TCACGATGAG AATAAACTTG TTGCCATTGA CGAATATAAT T

## INFORMATION FOR SEQ ID NO:12:

## SEQUENCE CHARACTERISTICS:

LENGTH:41

TYPE: nucleic acid

STRANDEDNESS:single

TOPOLOGY: linear

MOLECULE TYPE:other nucleic acid      synthetic DNA

SEQUENCE DESCRIPTION: SEQ ID NO:12

TCGTGATGGT CGTAAACAAC AAATGACTGA AGAACAACGT G

41

## INFORMATION FOR SEQ ID NO:13:

## SEQUENCE CHARACTERISTICS:

LENGTH:41

TYPE: nucleic acid

STRANDEDNESS:single

TOPOLOGY: linear

MOLECULE TYPE:other nucleic acid      synthetic DNA

SEQUENCE DESCRIPTION: SEQ ID NO:13

GCCATTCACG TTGTTCTTCA GTCATTGTT GTTTACGACC A

41



INFORMATION FOR SEQ ID NO:14:

SEQUENCE CHARACTERISTICS:

LENGTH:42

TYPE: nucleic acid

STRANDEDNESS:single

TOPOLOGY: linear

MOLECULE TYPE:other nucleic acid      synthetic DNA

SEQUENCE DESCRIPTION: SEQ ID NO:14

AATGGCTGTC TTATGGTTGC GTTGGTGTGA CTTGGGTAA CA

42

INFORMATION FOR SEQ ID NO:15:

SEQUENCE CHARACTERISTICS:

LENGTH:40

TYPE: nucleic acid

STRANDEDNESS:single

TOPOLOGY: linear

MOLECULE TYPE:other nucleic acid      synthetic DNA

SEQUENCE DESCRIPTION: SEQ ID NO:15

AGCTTGTTAA CCAAGTAAC ACCAACGCAA CCATAAGACA

40

INFORMATION FOR SEQ ID NO:16:

SEQUENCE CHARACTERISTICS:

LENGTH:38

TYPE: nucleic acid

STRANDEDNESS:single

TOPOLOGY: linear

MOLECULE TYPE:other nucleic acid      synthetic DNA

SEQUENCE DESCRIPTION: SEQ ID NO:16

AATTCGTAA CTCTGGTCAG TATCCGACTA ACCGTCTG

38

INFORMATION FOR SEQ ID NO:17:

SEQUENCE CHARACTERISTICS:

LENGTH:41

TYPE: nucleic acid

STRANDEDNESS:single

TOPOLOGY: linear

MOLECULE TYPE:other nucleic acid      synthetic DNA

SEQUENCE DESCRIPTION: SEQ ID NO:17

CGAATGCCAG ACGGTTAGTC GGATACTGAC CAGAGTTAAC G

41

INFORMATION FOR SEQ ID NO:18:

SEQUENCE CHARACTERISTICS:

LENGTH:49

TYPE: nucleic acid

STRANDEDNESS:single

TOPOLOGY: linear

MOLECULE TYPE:other nucleic acid synthetic DNA

SEQUENCE DESCRIPTION: SEQ ID NO:18

GCATTCGCTT CCTTCGATGA AGATCGTTTC AAGAACGAAC TGAAGAACG

49

INFORMATION FOR SEQ ID NO:19:

SEQUENCE CHARACTERISTICS:

LENGTH:49

TYPE: nucleic acid

STRANDEDNESS:single

TOPOLOGY: linear

MOLECULE TYPE:other nucleic acid synthetic DNA

SEQUENCE DESCRIPTION: SEQ ID NO:19

GGACGACCGT TCTTCAGTTC GTTCTTGAAA CGATCTTCAT CGAAGGAAG

49

INFORMATION FOR SEQ ID NO:20:

SEQUENCE CHARACTERISTICS:

LENGTH:35

TYPE: nucleic acid

STRANDEDNESS:single

TOPOLOGY: linear

MOLECULE TYPE:other nucleic acid synthetic DNA

SEQUENCE DESCRIPTION: SEQ ID NO:20

GTCGTCCGCG TTCTGGTGAA ACTCGTGCTG AATTC

## INFORMATION FOR SEQ ID NO:21:

## SEQUENCE CHARACTERISTICS:

LENGTH:35

TYPE: nucleic acid

STRANDEDNESS:single

TOPOLOGY: linear

MOLECULE TYPE:other nucleic acid      synthetic DNA

SEQUENCE DESCRIPTION: SEQ ID NO:21

GACCTTCGAA TTCAGCACGA GTTTCACCAG AACGC

35

## INFORMATION FOR SEQ ID NO:22:

## SEQUENCE CHARACTERISTICS:

LENGTH:48

TYPE: nucleic acid

STRANDEDNESS:single

TOPOLOGY: linear

MOLECULE TYPE:other nucleic acid      synthetic DNA

SEQUENCE DESCRIPTION: SEQ ID NO:22

GAAGGTCGTG TTGCTAAGGA ATCCTTCGAT GAAGAGAAAAG GCTTCCAG

48

## INFORMATION FOR SEQ ID NO:23:

SEQUENCE CHARACTERISTICS:

LENGTH:48

TYPE: nucleic acid

STRANDEDNESS:single

TOPOLOGY: linear

MOLECULE TYPE:other nucleic acid      synthetic DNA

SEQUENCE DESCRIPTION: SEQ ID NO:23

GAGCACGCTG GAAGCCTTTC TCTTCATCGA AGGATTCCTT AGCAACAC

48

INFORMATION FOR SEQ ID NO:24:

SEQUENCE CHARACTERISTICS:

LENGTH:42

TYPE: nucleic acid

STRANDEDNESS:single

TOPOLOGY: linear

MOLECULE TYPE:other nucleic acid      synthetic DNA

SEQUENCE DESCRIPTION: SEQ ID NO:24

CGTGCTCGTG AAGTTGCTTC TGTTATGAAC CGTGCTCTAG AA

42

INFORMATION FOR SEQ ID NO:25:

SEQUENCE CHARACTERISTICS:

LENGTH:39

TYPE: nucleic acid

STRANDEDNESS:single

TOPOLOGY: linear

MOLECULE TYPE:other nucleic acid      synthetic DNA

SEQUENCE DESCRIPTION: SEQ ID NO:25

AGCTTTCTAG AGCACGGTTC ATAACAGAAG CAACTTCAC

39

INFORMATION FOR SEQ ID NO:26:

SEQUENCE CHARACTERISTICS:

LENGTH:45

TYPE: nucleic acid

STRANDEDNESS:single

TOPOLOGY: linear

MOLECULE TYPE:other nucleic acid      synthetic DNA

SEQUENCE DESCRIPTION: SEQ ID NO:26

AATTCTCTAG AGAACGCTCA TGATGAATCT GCTTACCTGG ATAAC

45

INFORMATION FOR SEQ ID NO:27:

SEQUENCE CHARACTERISTICS:

LENGTH:50

TYPE: nucleic acid

STRANDEDNESS:single

TOPOLOGY: linear

MOLECULE TYPE:other nucleic acid      synthetic DNA

SEQUENCE DESCRIPTION: SEQ ID NO:27

CTTCTTCAGG TTATCCAGGT AAGCAGATTC ATCATGAGCG TTCTCTAGAG

50

INFORMATION FOR SEQ ID NO:28:

SEQUENCE CHARACTERISTICS:

LENGTH:49

TYPE: nucleic acid

STRANDEDNESS:single

TOPOLOGY: linear

MOLECULE TYPE:other nucleic acid      synthetic DNA

SEQUENCE DESCRIPTION: SEQ ID NO:28

CTGAAGAAGG AACTGGCTAA CGGTAACGAT GCTCTGCGTA ACGAAGATG

49

INFORMATION FOR SEQ ID NO:29:

SEQUENCE CHARACTERISTICS:

LENGTH:49

TYPE: nucleic acid

STRANDEDNESS:single

TOPOLOGY: linear

MOLECULE TYPE:other nucleic acid      synthetic DNA

SEQUENCE DESCRIPTION: SEQ ID NO:29

GAGAACGAGC ATCTTCGTTA CGCAGAGCAT CGTTACCGTT AGCCAGTTC

## INFORMATION FOR SEQ ID NO:30

## SEQUENCE CHARACTERISTICS:

LENGTH:40

TYPE: nucleic acid

STRANDEDNESS:single

TOPOLOGY: linear

MOLECULE TYPE:other nucleic acid      synthetic DNA

SEQUENCE DESCRIPTION: SEQ ID NO:30

CTCGTTCTCC GTTCTACTCT GCTCTGCGTA ACACTCCGTC

40

## INFORMATION FOR SEQ ID NO:31:

## SEQUENCE CHARACTERISTICS:

LENGTH:39

TYPE: nucleic acid

STRANDEDNESS:single

TOPOLOGY: linear

MOLECULE TYPE:other nucleic acid      synthetic DNA

SEQUENCE DESCRIPTION: SEQ ID NO:31

CTTTGAAGGA CGGAGTGTTA CGCAGAGCAG AGTAGAACG

39



INFORMATION FOR SEQ ID NO:32:

SEQUENCE CHARACTERISTICS:

LENGTH:47

TYPE: nucleic acid

STRANDEDNESS:single

TOPOLOGY: linear

MOLECULE TYPE:other nucleic acid      synthetic DNA

SEQUENCE DESCRIPTION: SEQ ID NO:32

CTTCAAAGAA CGTAACGGTG GTAACCATGA TCCGTCTCGT ATGAAAG

47

INFORMATION FOR SEQ ID NO:33:

SEQUENCE CHARACTERISTICS:

LENGTH:47

TYPE: nucleic acid

STRANDEDNESS:single

TOPOLOGY: linear

MOLECULE TYPE:other nucleic acid      synthetic DNA

SEQUENCE DESCRIPTION: SEQ ID NO:33

GATAACAGCT TTCATACGAG ACGGATCATG GTTACCACCG TTACGTT

47

INFORMATION FOR SEQ ID NO:34:

SEQUENCE CHARACTERISTICS:

LENGTH:45

TYPE: nucleic acid

STRANDEDNESS:single

TOPOLOGY: linear

MOLECULE TYPE:other nucleic acid      synthetic DNA

SEQUENCE DESCRIPTION: SEQ ID NO:34

CTGTTATCTA CTCTAAACAT TTCTGGTCTG GTCAGGATAG ATCTA

45

INFORMATION FOR SEQ ID NO:35:

SEQUENCE CHARACTERISTICS:

LENGTH:41

TYPE: nucleic acid

STRANDEDNESS:single

TOPOLOGY: linear

MOLECULE TYPE:other nucleic acid      synthetic DNA

SEQUENCE DESCRIPTION: SEQ ID NO:35

AGCTTAGATC TATCCTGACC AGACCAGAAA TGTTTAGAGT A

41

INFORMATION FOR SEQ ID NO:36:

SEQUENCE CHARACTERISTICS:

LENGTH:42

TYPE: nucleic acid

STRANDEDNESS:single

TOPOLOGY: linear

MOLECULE TYPE:other nucleic acid      synthetic DNA

SEQUENCE DESCRIPTION: SEQ ID NO:36

AATTCAGATC TTCTTCTGCT GATAAACGTA AATACGGTGA TC

42

INFORMATION FOR SEQ ID NO:37:

SEQUENCE CHARACTERISTICS:

LENGTH:44

TYPE: nucleic acid

STRANDEDNESS:single

TOPOLOGY: linear

MOLECULE TYPE:other nucleic acid      synthetic DNA

SEQUENCE DESCRIPTION: SEQ ID NO:37

CATCCGGATC ACCGTATTTA CGTTTATCAG CAGAAGAAGA TCTG

44

INFORMATION FOR SEQ ID NO:38:

SEQUENCE CHARACTERISTICS:

LENGTH:48

TYPE: nucleic acid

STRANDEDNESS:single

TOPOLOGY: linear

MOLECULE TYPE:other nucleic acid      synthetic DNA

SEQUENCE DESCRIPTION: SEQ ID NO:38

CGGATGCATT CCGTCCGGCT CCGGGTACTG GTCTGGTAGA CATGTCTC

48

INFORMATION FOR SEQ ID NO:39:

SEQUENCE CHARACTERISTICS:

LENGTH:48

TYPE: nucleic acid

STRANDEDNESS:single

TOPOLOGY: linear

MOLECULE TYPE:other nucleic acid      synthetic DNA

SEQUENCE DESCRIPTION: SEQ ID NO:39

GATCACGAGA CATGTCTACC AGACCAGTAC CCGGAGCCGG ACGGAATG

48

INFORMATION FOR SEQ ID NO:40:

SEQUENCE CHARACTERISTICS:

LENGTH:35

TYPE: nucleic acid

STRANDEDNESS:single

TOPOLOGY: linear

MOLECULE TYPE:other nucleic acid      synthetic DNA

SEQUENCE DESCRIPTION: SEQ ID NO:40

GTGATCGTAA CATCCGCGT TCTCCGACTT CTCCG

35

INFORMATION FOR SEQ ID NO:41:

SEQUENCE CHARACTERISTICS:

LENGTH:36

TYPE: nucleic acid

STRANDEDNESS:single

TOPOLOGY: linear

MOLECULE TYPE:other nucleic acid      synthetic DNA

SEQUENCE DESCRIPTION: SEQ ID NO:41

CTTCACCCGG AGAAGTCGGA GAACGCGGGA TGTTAC

36

INFORMATION FOR SEQ ID NO:42:

SEQUENCE CHARACTERISTICS:

LENGTH:40

TYPE: nucleic acid

STRANDEDNESS:single

TOPOLOGY: linear

MOLECULE TYPE:other nucleic acid      synthetic DNA

SEQUENCE DESCRIPTION: SEQ ID NO:42

GGTGAAGGCT TCGTTAACTT CGATTACGGT TGGTTCGGTG

40

INFORMATION FOR SEQ ID NO:43:

SEQUENCE CHARACTERISTICS:

LENGTH:40

TYPE: nucleic acid

STRANDEDNESS:single

TOPOLOGY: linear

MOLECULE TYPE:other nucleic acid      synthetic DNA

SEQUENCE DESCRIPTION: SEQ ID NO:43

GTCTGAGCAC CGAACCAACC GTAATCGAAG TTAACGAAGC

40

INFORMATION FOR SEQ ID NO:44

SEQUENCE CHARACTERISTICS:

LENGTH:44

TYPE: nucleic acid

STRANDEDNESS:single

TOPOLOGY: linear

MOLECULE TYPE:other nucleic acid      synthetic DNA

SEQUENCE DESCRIPTION: SEQ ID NO:44

CTCAGACTGA AGCTGATGCT GATAAGACTG TATGGACCCA TGGA

44

INFORMATION FOR SEQ ID NO:45

SEQUENCE CHARACTERISTICS:

LENGTH:41

TYPE: nucleic acid

STRANDEDNESS:single

TOPOLOGY: linear

MOLECULE TYPE: other nucleic acid      synthetic DNA

SEQUENCE DESCRIPTION: SEQ ID NO:45

AGCTTCCATG GGTCCATACA GTCTTATCAG CATCAGCTTC A

41

INFORMATION FOR SEQ ID NO:46

SEQUENCE CHARACTERISTICS:

LENGTH:39

TYPE: nucleic acid

STRANDEDNESS:single

TOPOLOGY: linear

MOLECULE TYPE: other nucleic acid      synthetic DNA

SEQUENCE DESCRIPTION: SEQ ID NO:46

AATTCCCATG GTAACCATTA CCATGCTCCG AACGGTTCT

39

INFORMATION FOR SEQ ID NO:47

SEQUENCE CHARACTERISTICS:

LENGTH:42

TYPE: nucleic acid

STRANDEDNESS:single

TOPOLOGY: linear

MOLECULE TYPE: other nucleic acid      synthetic DNA

SEQUENCE DESCRIPTION: SEQ ID NO:47

CACCCAGAGA ACCGTTCCGA GCATGGTAAT GGTTACCATG GG

42

INFORMATION FOR SEQ ID NO:48

SEQUENCE CHARACTERISTICS:

LENGTH:41

TYPE: nucleic acid

STRANDEDNESS:single

TOPOLOGY: linear

MOLECULE TYPE:other nucleic acid      synthetic DNA

SEQUENCE DESCRIPTION: SEQ ID NO:48

CTGGGTGCTA TGCATGTATA CGAATCTAAA TTCCGTAAC T G

41

INFORMATION FOR SEQ ID NO:49

SEQUENCE CHARACTERISTICS:

LENGTH:42

TYPE: nucleic acid

STRANDEDNESS:single

TOPOLOGY: linear

MOLECULE TYPE:other nucleic acid      synthetic DNA

SEQUENCE DESCRIPTION: SEQ ID NO:49

CTTCAGACCA GTTACGGAAT TTAGATTCGT ATACATGCAT AG

42



INFORMATION FOR SEQ ID NO:50

SEQUENCE CHARACTERISTICS:

LENGTH:37

TYPE: nucleic acid

STRANDEDNESS:single

TOPOLOGY: linear

MOLECULE TYPE:other nucleic acid      synthetic DNA

SEQUENCE DESCRIPTION: SEQ ID NO:50

GTCTGAAGGT TACTCTGACT TCGATCGTGG TGCTTAC

37

INFORMATION FOR SEQ ID NO:51

SEQUENCE CHARACTERISTICS:

LENGTH:37

TYPE: nucleic acid

STRANDEDNESS:single

TOPOLOGY: linear

MOLECULE TYPE:other nucleic acid      synthetic DNA

SEQUENCE DESCRIPTION: SEQ ID NO:51

GTGATAACGT AAGCACCACG ATCGAAGTCA GAGTAAC

37

INFORMATION FOR SEQ ID NO:52

SEQUENCE CHARACTERISTICS:

LENGTH:38

TYPE: nucleic acid

STRANDEDNESS:single

TOPOLOGY: linear

MOLECULE TYPE:other nucleic acid      synthetic DNA

SEQUENCE DESCRIPTION: SEQ ID NO:52

GTTATCACCT TCATTCCGAA ATCTTGGAAC ACTGCTCC

38

INFORMATION FOR SEQ ID NO:53

SEQUENCE CHARACTERISTICS:

LENGTH:38

TYPE: nucleic acid

STRANDEDNESS:single

TOPOLOGY: linear

MOLECULE TYPE:other nucleic acid      synthetic DNA

SEQUENCE DESCRIPTION: SEQ ID NO:53

CTTTGTCCGG AGCAGTGTTT CAAGATTTTCG GAATGAAG

38

INFORMATION FOR SEQ ID NO:54

SEQUENCE CHARACTERISTICS:

LENGTH:38

TYPE: nucleic acid

STRANDEDNESS:single

TOPOLOGY: linear

MOLECULE TYPE:other nucleic acid synthetic DNA

SEQUENCE DESCRIPTION: SEQ ID NO:54

GGACAAAGTT AAACAGGGTT GGCCGTAATG AAAGCTTA

38

INFORMATION FOR SEQ ID NO:55

SEQUENCE CHARACTERISTICS:

LENGTH:34

TYPE: nucleic acid

STRANDEDNESS:single

TOPOLOGY: linear

MOLECULE TYPE:other nucleic acid synthetic DNA

SEQUENCE DESCRIPTION: SEQ ID NO:55

AGCTTAAGCT TTCATTACGG CCAACCCTGT TTAA

34

INFORMATION FOR SEQ ID NO:56

SEQUENCE CHARACTERISTICS:

LENGTH:20

TYPE: nucleic acid

STRANDEDNESS:single

TOPOLOGY: linear

MOLECULE TYPE:other nucleic acid synthetic DNA

SEQUENCE DESCRIPTION: SEQ ID NO:56

TTTCCCACT CACGACGTTG

20

INFORMATION FOR SEQ ID NO:57

SEQUENCE CHARACTERISTICS:

LENGTH:21

TYPE: nucleic acid

STRANDEDNESS:single

TOPOLOGY: linear

MOLECULE TYPE:other nucleic acid      synthetic DNA

SEQUENCE DESCRIPTION: SEQ ID NO:57

CAGGAAACAG CTATGACCAT G

21

INFORMATION FOR SEQ ID NO:58

SEQUENCE CHARACTERISTICS:

LENGTH:36

TYPE: nucleic acid

STRANDEDNESS:single

TOPOLOGY: linear

MOLECULE TYPE:other nucleic acid      synthetic DNA

SEQUENCE DESCRIPTION: SEQ ID NO:58

TAAGGAGGTT TAAAATGTCT GACGATCGTG TTACTC

## INFORMATION FOR SEQ ID NO:59

## SEQUENCE CHARACTERISTICS:

LENGTH:21

TYPE: nucleic acid

STRANDEDNESS:single

TOPOLOGY: linear

MOLECULE TYPE:other nucleic acid      synthetic DNA

SEQUENCE DESCRIPTION: SEQ ID NO:59

TACGCCAAGG TTGTTAACCC A

21